

What Is Claimed Is:

1. A method for monitoring a plurality of control units in a network, comprising the steps of:
 - providing to each control unit a security function for detecting a plurality of errors;
 - assigning a monitoring routine selected from a plurality of monitoring routines to each error;
 - assigning a shutdown matrix that is subdivided according to the plurality of errors to the security function;
 - selecting at least one of the plurality of monitoring routines according to the errors present in the shutdown matrix, wherein:
 - depending on at least one first condition, the shutdown matrix contains a plurality of shutdown strategies; and
 - on detection of at least one of the plurality of errors by one of the plurality of monitoring routines and depending on at least one of the at least one first condition and at least one second condition, performing one of the plurality of shutdown strategies in the network to shut down at least one of the plurality of control units.
2. The method according to claim 1, wherein at least one of the at least one first condition and the at least one second condition corresponds to at least one of:
 - an error detection,
 - an error description,
 - an operating mode,
 - an operating state,
 - a control unit for shutdown strategy,
 - a control unit for monitoring routine,
 - an error detection time, and
 - one of a use tolerance and use limit.
3. The method according to claim 1, further comprising the step of:
 - subdividing the security function into at least subfunctions relating to a security core, the plurality of monitoring routines, and the plurality of shutdown strategies, the security core being the same on all the control units of the network.

4. The method according to claim 3, wherein the security function additionally includes at least one of:

an initialization,
an error entry, and
a restore testing.

5. The method according to claim 1, further comprising the step of:

providing to one of the plurality of control units of the network a coordinating function for all other control units in the plurality of control units with respect to at least one of an initialization subfunction, an error entry subfunction, and a restore testing subfunction contained in the security function of the control unit provided with the coordinating function.

6. The method according to claim 1, wherein:

those of the plurality of monitoring routines which can be selected by each control unit are different for each control unit according to the errors that can be detected as well as the respective shutdown matrices of the control units, and
the monitoring and the shutdown strategies are distributed among all the control units of the network.

7. The method according to claim 1, wherein:

those of the monitoring routines which can be selected by each control unit are one of the same and partially the same for each control unit according to the errors that can be detected as well as the respective shutdown matrices of the control units,
and

the monitoring and the shutdown strategies are one of redundant and capable of being carried out in a partially redundant manner.

8. A device for monitoring a plurality of control units in a network, comprising:

an arrangement for providing to each control unit a security function for detecting a plurality of errors;

an arrangement for assigning a monitoring routine selected from a plurality of monitoring routines to each error;

an arrangement for assigning a shutdown matrix that is subdivided according to the

plurality of errors to the security function;

an arrangement for selecting at least one of the plurality of monitoring routines according to the errors present in the shutdown matrix, wherein:

depending on at least one first condition, the shutdown matrix contains

a plurality of shutdown strategies; and

an arrangement for, on detection of at least one of the plurality of error by one of the plurality of monitoring routine and depending on at least one of the at least one first condition and at least one second condition, performing one of the plurality of shutdown strategies in the network to shut down at least one of the plurality of control units.

9. A network, comprising:

a plurality of control units, each control unit including:

an arrangement for providing to each control unit a security function for detecting a plurality of errors;

an arrangement for assigning a monitoring routine selected from a plurality of monitoring routines to each error;

an arrangement for assigning a shutdown matrix that is subdivided according to the plurality of errors to the security function;

an arrangement for selecting at least one of the plurality of monitoring routines according to the errors present in the shutdown matrix, wherein:

depending on at least one first condition, the shutdown matrix contains

a plurality of shutdown strategies; and

an arrangement for, on detection of at least one of the plurality of error by one of the plurality of monitoring routine and depending on at least one of the at least one first condition and at least one second condition, performing one of the plurality of shutdown strategies in the network to shut down at least one of the plurality of control units.

10. A program for causing at least one control unit of a network to perform the steps of:

providing to each control unit a security function for detecting a plurality of errors;

assigning a monitoring routine selected from a plurality of monitoring routines to each error;

assigning a shutdown matrix that is subdivided according to the plurality of errors to

the security function;

selecting at least one of the plurality of monitoring routines according to the errors present in the shutdown matrix, wherein:

depending on at least one first condition, the shutdown matrix contains a plurality of shutdown strategies; and

on detection of at least one of the plurality of error by one of the plurality of monitoring routine and depending on at least one of the at least one first condition and at least one second condition, performing one of the plurality of shutdown strategies in the network to shut down at least one of the plurality of control units.

FOUO - 92092001